

Purdue University
Purdue e-Pubs

RCHE Presentations

Regenstrief Center for Healthcare Engineering

3-23-2007

Integrating Patient Safety into the Curriculum

Kathryn Gardner Rapala
Purdue, krapala@purdue.edu

Julie Novak

Follow this and additional works at: http://docs.lib.purdue.edu/rche_pre

Rapala, Kathryn Gardner and Novak, Julie , "Integrating Patient Safety into the Curriculum" (2007). *RCHE Presentations*. Paper 11.
http://docs.lib.purdue.edu/rche_pre/11

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact epubs@purdue.edu for additional information.

MARCH/APRIL 2007

Patient Safety

& QUALITY HEALTHCARE

NEWS • SCIENCE • RESEARCH • OPINION



INTEGRATING PATIENT SAFETY IN CURRICULUM

EVIDENCE-BASED NURSING

MEDICAL SIMULATION
IN THE FIELD

UNIVERSAL BED MODEL

RAPID RESPONSE CRITERIA



Doctor of Nursing Practice students Ruth Ann Smolen, Polly Royal, and Mike Criswell, along with Julie Novak (3rd from left), head of Purdue School of Nursing, ready the simulator for students.

Image courtesy of the Purdue School of Nursing

INTEGRATING

By Kathryn Rapala, JD, RN

and

Julie Cowan Novak, DNSc, RN, MA, CPNP, FAANP



The Institute of Medicine (IOM) reports *Crossing the Quality Chasm: A New Health System for the 21st Century* (2001) and *To Err Is Human* (2000) were tipping points in patient safety. The public reaction to these reports was significant. People paid attention.

The report energized patient safety research and applications, prompting much needed research and evidence-based practice. It is difficult to find a patient safety article that does not reference at least one of these landmark reports.

These early IOM reports were a catalyst for the development of the Doctor of Nursing Practice degree at Purdue University. Subsequent healthcare summits at Purdue University and elsewhere have resulted in common themes, including consumer-driven healthcare, basic universal healthcare for all, interoperability of electronic health records, interprofessional education to promote collaboration, and new models of care for nurse-managed clinic systems.

The academic patient safety call to arms occurred in 2003, when the Institute of Medicine published *Health Professions Education: A Bridge to Quality*. The education report has not enjoyed the media exposure of the earlier two reports, partially because talking about education is not as sensational as lost lives. But we who know that the root cause to any issue is complex and convoluted must not lose momentum in solving fundamental education-related patient safety issues. Education, as a root cause of patient safety issues, is losing lives once removed.

During a root cause analysis, it is always tempting to “re-educate” staff on whatever the identified gap was in the system (Ebright and Rapala, 2003). Without underlying competencies, it is difficult to understand, let alone redesign, patient care processes. Although many healthcare providers have provided patient safety education to staff members, and courses are available within some universities, the core competencies must be woven into curriculum.

PATIENT SAFETY into CURRICULUM

The Purdue University Doctor of Nursing Practice

The Purdue University School of Nursing has answered the IOM call for fundamental education redesign. This article will explore the Purdue Doctor of Nursing Practice curriculum as an example of successfully integrating patient safety with a plan of study.

The Institute of Medicine Education Challenge

The IOM noted in 2001 that educational institutions, among other stakeholders, must improve the environment to prepare the workforce for a complex health environment. Specifically, the recommendation was to convene a multidisciplinary summit to restructure education on all levels to reflect the current state of complex healthcare. The IOM further charged this group with assessing the impact of such programs on funding, sponsorship, and credentialing.

The IOM multidisciplinary summit was convened in 2002, and the *Health Professions Education: A Bridge to Quality* was published. The report noted,

[a]lthough there is a spotlight on the serious mismatch between what we know to be good quality care and the care that is actually delivered, students and health professionals have few opportunities to avail themselves of coursework and other educational interventions that would aide them in analyzing the root causes of errors and other quality problems and in designing system-wide fixes.

The report cites several reasons that redesigning healthcare education is slow and difficult:

- The siloed nature of professional schools and graduate programs with competing interests are barriers to collaboration.
- Some academic institutions value research and clinical activities at the expense of education.
- Motivation and leadership are lacking partially due to a lack of clear understanding of why change is needed.
- Coordination and collaboration are difficult to achieve due to physical location, competing priorities, and simple geography (IOM, 2003).

In addition to a common patient safety language, the IOM multidisciplinary group suggested a group of five core competencies that should be incorporated into the curriculum of all healthcare education programs. The five competencies are to provide patient-centered care, to work in interdisciplinary teams, to employ evidence-based practice, to apply quality improvement, and to utilize informatics (IOM, 2003).

Nursing Academe Response to the IOM Challenge

Just as it is difficult for healthcare providers to respond to and balance a myriad of patient safety issues from medication rec-

The siloed nature of professional schools and graduate programs with competing interests are barriers to collaboration.

onciliation to information systems implementation, it is difficult for nursing academe to balance patient safety with operations, research, and teaching. Stevens and Staley (2006), in their review of nursing response to IOM reports, state that these reports can serve as a blueprint for change. In the case of Purdue University School of Nursing, the early reports were the impetus to change, and *Health Professions Education: A Bridge to Quality* (IOM, 2003) provided validation of the course that had been set.

The American Association of Colleges of Nursing white paper, *The Essentials of Doctoral Education for Advanced Nursing Practice* (AACN, 2006), states that the IOM reports, with the resulting focus on nursing education, provide part of the evidence base for the DNP degree. While research-based doctoral students are trained to create new knowledge and conduct bench research, the role of the DNP is to translate that research into practice through system design, interdisciplinary collaboration, and evidence-based practice and quality improvement initiatives. Essential areas for the DNP are:

- Scientific underpinnings for practice.
- Organizational and systems leadership for quality improvement and systems thinking.
- Clinical scholarship and analytical methods for evidence based practice.
- Information systems/technology and patient care technology for the improvement and transformation of health care.
- Health care policy for advocacy in health care.
- Interprofessional collaboration for improving patient and population health outcomes.
- Interdisciplinary collaborative practice models to improve client outcomes.
- Clinical prevention and population health for improving the nation's health.
- Advanced nursing practice (AACN, 2006).

These essential areas reflect the IOM core patient safety competencies required of all healthcare professionals. In short, AACN embraced the IOM education recommendations.

Translating DNP Vision into Practice

The Purdue vision was a practice doctoral program that would address the complexity of the healthcare system: the information, knowledge, and technology explosion; spiraling costs; and the need for a systems approach to create new models of care and solve existing healthcare dilemmas (Wall, Novak, & Wilkerson, 2005).

The coauthor's (JCN) 1990s curricular expansion in the area of health informatics, epidemiology, rural healthcare systems, and health policy in incorporating systems thinking into master's curriculum was a key developmental element in the DNP program, as was her attendance at a series of DNP focus group discussion in Washington, DC, and AACN Doctoral Conferences. Additional consultation was provided by Dr. Lucy Marion, National Organization of Nurse Practitioners Task Force chair, who presented to the Purdue School of Nursing faculty, and by Dr. Betty Lenz, the DNP Task Force chair and dean, Ohio State University. Plans for the program were designed in 2002 and achieved unanimous faculty support in 2003. Purdue University, Indiana Commission for Higher Education approval, and DNP student admission occurred in 2005.

The doctor of nursing practice degree differs from a doctor of philosophy in nursing, which is offered at many universities throughout the country. Scholars at the Agency for HealthCare Research and Quality (2005) reported that it can take up to 20 years before scientific findings become part of practice at the bedside. The DNP program's emphasis on interdisciplinary, evidence-based projects attempts to significantly decrease that lag time. These nursing practice doctorate graduates will have the ability to translate bench research and apply it to the bedside or other clinical and healthcare systems.

The DNP post-baccalaureate degree is designed as a 4-year program curriculum. The first 2 years are devoted to specialization as a pediatric nurse practitioner or adult nurse practitioner. Nurse practitioners focus on individualized, family, and community care that prioritizes health promotion, wellness, disease prevention, patient education, and management of stable chronic conditions. Years 3 and 4 are focused on healthcare systems approaches, residencies, cognate and health policy residencies, and capstone projects. The curriculum includes information technology, health economics, environmental epidemiology, evidence-based practice, systems, and biostatistics. This integrated model from individual to family to community to system increases access while lowering healthcare costs.

Collaboration: Regenstrief Center for Healthcare Engineering

The word "collaboration" in healthcare generally brings to mind a clinical multidisciplinary team—a nurse, a physician, a pharmacist, and other providers—working to achieve good patient outcomes. However, it is important to collaborate with experts outside healthcare to accelerate patient safety changes (Kerfoot, Rapala, Ebright, and Rogers, 2006). High-reliability organizations, such as the aerospace industry that operates with few errors, have advanced safety principles beyond that of healthcare. High reliability is often achieved through the application of engineering principles. The Purdue DNP program applies engineering principles to healthcare. This collaboration leads to the creation of new practice models across the continuum of care (Wall et al., 2006).

The Purdue culture supports collaboration and discourages silos. Purdue's Discovery Park (<http://discoverypark.purdue.edu>) is a multidisciplinary collaboration built on the premise



Hank Kraebber, Purdue professor of mechanical engineering technology and Regenstrief Center Faculty Scholar, tries the aging suit on for size.

Image courtesy of the Purdue School of Nursing

that work done in collaboration exceeds that done in isolation.

Purdue University is well known for an array of engineering specialty programs. With start-up funding from the Regenstrief Foundation, Purdue University created the Regenstrief Center for Healthcare Engineering (RCHE) in 2005 to design, implement, and sustain interdisciplinary solutions to achieve a transformed healthcare delivery system that optimizes quality, cost-effectiveness, and access for all persons. While RCHE recognizes that the diagnosis and treatment of patients must remain in the hands of healthcare professionals, the application of engineering, management, and scientific principles has the potential to reshape the healthcare delivery landscape. Core research areas include operational efficiency and effectiveness of healthcare delivery, enhancement of safety and quality of healthcare delivery, and security and interoperability of health information technology. According to Steve Witz, Ph.D. director, Regenstrief Center for Healthcare Engineering, inherent in the RCHE operating model is interdisciplinary research to address the complex social challenges of healthcare delivery. The Purdue School of Nursing provides leadership for these RCHE teams, which today include representatives from nearly all the colleges at Purdue University.

The collaboration between the Purdue School of Nursing and RCHE is a natural fit. RCHE needs DNP students to "translate" healthcare and direct researchers to frontline experience. The DNP students learn systems and engineering con-

cepts to apply these principles to improve care. Since DNP students come from a healthcare environment with many healthcare relationships, specialties, and affiliations, there are many opportunities for collaboration. Similarly, RCHE has many projects and innovations across the campus, as well as partnerships with business and industry. DNP and graduate engineering students are paired with nursing and engineering faculty on specific projects. The DNP student brings core capabilities of health promotion, disease prevention, care management, patient safety, and care of the patient family and community, as well as a biopsychosocial behavioral perspective, a population systems context, an understanding of resource utilization, and a strong service orientation. Engineering students bring expertise in root cause analysis, systems design, device design, simulation, and human factors. Melding these entities yields a dynamic, synergistic, and innovative environment, where each partner brings affiliations and skills to improve care that is evidence based. This creates a horizontally and vertically integrated learning environment where not only the students benefit, but nursing and engineering faculty learn and create new educational and practice models.

The Purdue Healthcare Technical Assistance Program (Healthcare TAP) provides another learning experience for DNP students. Healthcare TAP offers short-term consulting services for Indiana's hospitals and other agencies through a partnership among the Indiana Hospital and Health Association, the Purdue Technical Assistance Program, and RCHE. Nursing faculty and DNP students have led 27 of 38 Healthcare TAP projects. Many of these projects focus on patient safety and are an opportunity to integrate education and service more deeply. Although the initial projects are relatively brief, they often lead to capstone projects for DNP students and significant extramural funding.

Six interdisciplinary faculty, including nurses, sit on the RCHE Executive Team. Nursing faculty contribute to the weekly RCHE Operations meeting, where interested faculty and students share, present, and collaborate on projects and research. The meetings themselves are springboards for partnerships. For example, the School of Nursing hosted an Operations and Executive Meeting in the Purdue Center for Nursing Education (CNE), which houses state-of-the-art patient simulators, includ-

ing a man, child, baby, and pregnant mother. This particular meeting sparked research, DNP projects in human factors, and international presentations in Beijing. Recently, DNP students and nursing and mechanical engineering faculty paired senior baccalaureate nursing students and engineering students for a dialogue on healthcare device design. The resulting discussions were very sophisticated and collaborative—and fun for the students. This format creates a scholarly community of collaboration.



Patient Identification Products



Easy to use
Simple to produce

Designed to accommodate all the information you want at bedside, barcodes, color photos, allergy and fall risk warnings as well as patient demographics. Endur ID wristband products are designed to link your patient with all the technology available for their care, in a colorful and easy to use format.

All of Endur ID's products are produced using standard laser or inkjet printers. They are all "print and use" products, require no assembly and are very durable.

Let us work with you to design a Patient Identification Program that enhances patient care at bedside.

Request your free samples at www.endurid.com.



Endur ID Inc.
360 Merrimack St.
Lawrence, MA 01843

Ph 866.372.6585
Fx 978.686.9710

Website www.endurid.com • E-mail info@endurid.com

See us at National Patient Safety Foundation, Booth # 507

External Relationships Produce Synergy

Students and graduates of the Doctor of Nursing Practice program will not only collaborate, but lead. DNP students learn and/or enhance the skill set necessary to translate research and evidence-based practice in a variety of settings. Leadership and health policy skills are key components of the DNP program. One DNP student provided support for a state-wide gap analysis for avian flu preparation, and currently is the lead DNP for the resulting action plan.

The co-author (KGR), a DNP student, is director of the Indianapolis Coalition for Patient Safety (Coalition), which comprises six Indianapolis hospitals that lead and collaborate on patient safety issues. All of these local, state, and national contacts provide opportunities to collaborate benchmark practice, and to continually improve the state's healthcare delivery system.

Innovation Triggers Funding

Since Purdue is a land grant college situated in a rural area, the initial DNP program design was funded by a \$716,410 grant from the U.S. Department of Health and Human Services Health Resource Service Administration for rural advanced-practice nursing (Novak, 2006). Many DNP graduates will provide healthcare in rural settings, as they have been educated in or near their rural home communities (Novak and Corbett, 2000).

More recently, the Purdue School of Nursing received a \$2.49 million grant from the Helene Fuld Healthcare Trust to support the school's DNP program (Novak, 2006). The grant will fund an endowment for scholarships, leadership development, and the implementation, evaluation, and delivery of new programs. Nursing doctoral students from across the nation also will have the opportunity to partner with Purdue students on healthcare engineering projects at Fuld Summer Institutes that will increase dispersion of new ideas and approaches. The DNP students have additional financial support and space from RCHE and Indiana State Department of Health grants.

Outcomes

Outcomes of the five IOM competencies required for safe practice—patient-centered care, interdisciplinary teams, evidence-based practice, quality improvement, and informatics—may be thought of in several ways. The educational curriculum, from both a faculty and program status, will be evaluated using the Purdue University system. The first DNP graduates will graduate in May of 2007. The DNP projects, which are consistent with the IOM competencies, will be tracked for outcomes, translation, and funding. This in itself will produce additional knowledge to both improve the program and guide the students and faculty.

According to Witz, from a RCHE perspective, outcomes may be measured from peer review, particularly

Students and graduates of the Doctor of Nursing Practice program will not only collaborate, but lead.

when publications occur, and from the impact of the work performed. Impact assessment comes from evaluating implemented projects (did the project contribute to resolution of the problems and improve healthcare delivery within the organization?), including feedback from strategic partners. Success in both peer review and impact assessment indicates that the collaborative relationships in education and service are working.

Conclusion

Education delivery is not unlike healthcare delivery—it must be consistently evaluated for evidence and outcomes, often leading to redesign. The Purdue University School of Nursing, through the DNP program, has done just that, and as the 10th DNP program in the United States (198 are in development) is leading this nursing and healthcare education and healthcare “revolution” (Kuhn, 1996).

Nurses must be at the leadership table to translate new knowledge into new systems of safe passage for the patient. The challenge of leadership has always been to provide coherence, structure, and meaning in times of great change and dislocation. As hockey legend Wayne Gretzky said, “You don’t skate to the puck; you skate to where the puck is going to be.” **IPSQH**

Kathy Rapala is a visiting associate professor at Purdue School of Nursing and director of the Second Degree Program, joining the faculty in the fall of 2006. She was previously the director of risk management and patient safety at Clarian. She had been at Clarian and its predecessor hospitals for 25 years, first working at Riley Hospital for Children in the neonatal intensive care unit. Rapala began her risk management career as head of risk management, first at Indiana University Medical Center in 1992, and then Clarian since 1997. She was in the first American Hospital Association/National Patient Safety Foundation Patient Safety Fellowship in 2001. Rapala is the recipient of the American Society of Healthcare Risk Management Todd Pickett National Patient Safety Award for her development of the Clarian Safe Passage Program®. Rapala is currently pursuing her Doctor of Nursing Practice (DNP) at Purdue University School of Nursing and is interim director of the Indianapolis Coalition for Patient Safety, which is comprised of all the Indianapolis hospitals and health systems—Clarian, Community, St. Vincent, Wishard, St. Francis, and VA. Rapala may be contacted at krapala@purdue.edu.

Julie Novak is professor and head of the Purdue University School of Nursing; associate dean of the College of Pharmacy, Nursing, and Health Sciences; and a member of the RCHE Executive Team and the Indianapolis Coalition for Patient Safety. Novak has developed, taught, and achieved funding for nurse practitioner programs, research, and global community initiatives in international settings.

The author of more than 60 publications including journals, book chapters, and a textbook, Novak has given more than 200 national and international presentations and has been awarded more than \$7.5 million in grants to support her research in patient safety, child and family health promotion, tobacco control, nurse managed clinics, and nursing education including \$2.49 million from the Fuld Health Trust for the Purdue School of Nursing Doctor of Nursing Practice program. Novak is the recipient of awards for nursing and healthcare leadership, advocacy and systems reform including the Indiana Commission for Women Torchbearer Award, the Belford Founder's Award from Sigma Theta Tau International Nursing Honorary, the Loretta C. Ford Award from the University of Colorado, and the Hughes Career Achievement Award from the University of San Diego.

REFERENCES

- American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advance nursing practice*. Washington, DC.
- Ebright, P., & Rapala, K. (2003). Blame—Do you know it when you see it? *Outcomes Management*, 7(3), 91-93.
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academy Press.
- Institute of Medicine. (2003). *Health professions education: A bridge to quality*. A. Greiner, & E. Knebel (Eds.). Washington DC: National Academy Press.
- Kerfoot, K., Rapala, K., Ebright, P., & Rogers, S (2006). The power of collaboration with patient safety programs: Building safe passage for patients, nurses and clinical staff. *Journal of Nursing Administration*, 36(12), 582-588.
- Kuhn, T. (1996). *Structure of scientific revolution*. Chicago: University of Chicago Press.
- Novak, J. (2006). *The doctor of nursing practice: Reengineering healthcare*. Helen Fuld Healthcare Trust.
- Novak, J., & Corbett, C. (2000). Challenges and change in nurse practitioner education: The UVA experience. In J. Novotny, *Distance education in nursing*. New York: Springer Publications.
- Novak, J., Wall, B., & Edwards, N. (2006). U.S. Department of Health and Human Services, Health Resources and Services Administration (#1 D09HPO5304-01-00), "Rural Advanced Practice Nursing: Post-BSN to MS/DNP."
- Stevens, K. & Staley, J. (2006). The *Quality Chasm* reports, evidence-based practice and nursing's response to improve healthcare. *Nursing Outlook*, 54(2), 94-101.
- Wall, B., Novak, J., & Wilkerson, S. (2005). The doctor of nursing practice: Reengineering healthcare. *Journal of Nursing Education*, 44(9), 396-403.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge grant support from the U.S. Department of Health and Human Services, Health Resources and Services Administration (#1 D09HPO5304-01-00), "Rural Advanced Practice Nursing: Post-BSN to MS/DNP," and from the Helene Fuld Health Trust, "The Doctor of Nursing Practice: Reengineering Healthcare."

The authors wish to recognize and express appreciation for the partnership and collaboration of the Purdue Regenstrief Center for Healthcare Engineering at Purdue University Discovery Park.



YOUR PLACE IS AT
Maine Medical Center
A health place like no place in Maine.

WWW.MMC.ORG

Director, Performance Improvement and Patient Safety

Maine Medical Center is a 606-bed academic tertiary care hospital in Portland, Maine. Our commitment to safe patient and family-centered care has been rewarded by achievement of Magnet nursing status and inclusion on Leapfrog's Top Hospitals list in 2006.

The Director of Performance Improvement and Patient Safety will report to the Patient Safety Officer and Associate Vice President, Medical Affairs. Our new director will manage and direct the staff of the Center for Performance Improvement. Duties include providing expert consultation to departments and individuals in developing performance improvement plans that align with organizational goals, developing and implementing multidisciplinary training and education in patient safety and performance improvement. The director will lead implementation of our comprehensive patient safety plan using a variety of performance improvement tools, including RCA, FMEA, rapid cycle change, team training, and lean manufacturing.

Position qualifications include five to ten years of experience in leading organizational change and demonstrated process redesign, teaching, project management, performance measurement, and data analysis skills. Candidates must have a collaborative management style for maintaining effective working relationships with departments, medical staff, and individuals at all levels of the organization. A clinical background, master's degree in a healthcare or business field, and CPHQ are preferred. We offer a competitive salary that is commensurate with experience.

For more information and to apply online, please visit www.mmc.org.

EOE. Participating member of the Diversity Hiring Coalition of Maine.

The MaineHealth Family



Glaciers, midnight sun... and the freedom to enjoy it all.

Turn in any direction and Alaska will astound you with its breathtaking beauty. Look into a nursing career with the **Alaska VA Healthcare System and Regional Office** — and you will be taken aback by countless stories of valor. We proudly offer the latest medical technologies, a new primary care clinic in Anchorage opening in 2009...not to mention a joint venture with Elmendorf Air Force Base. And with your compassion and care, you can truly express a heartfelt thanks by taking care of those who take care of us. Enjoy the beauty...and the freedom. Join us today.

Patient Safety Manager

As a RN, maintain and manage the Patient Safety Program including trending and analyzing incidents across the facility, providing management support and monitoring the quality and progress of root cause analyses and follow-up actions. In addition, develop approaches to all areas of care with a focus on patient safety, and train and raise awareness about VHA patient safety and serve as the facility liaison to the National Center for Patient Safety.

As a metropolitan area, Anchorage offers many big city amenities with small town informality, four-star hotels and restaurants and a performing arts center. We offer comprehensive benefits, including generous leave, tuition reimbursement, a 24 percent tax deferred cost of living adjustment, and Alaska has no sales or income tax. For a complete job description and application information, please visit www.usajobs.opm.gov, or call Robert Jordan, HR Specialist, at: (907) 257-5453. To apply, please send your completed application to: Human Resources, AVAHSRO, 2925 DeBarr Road, Anchorage, AK 99508.



**Alaska Healthcare System
and Regional Office**

VA is an equal opportunity employer which values diversity.

usa.jobs.opm.gov